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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/725,563

12/03/2003

Ephraim Gutmark

003-101

4002

36844

7590

08/08/2006

CERMAK & KENEALY LLP
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EXAMINER

COCKS, JOSIAH C

ART UNIT

PAPER NUMBER

3749

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action
Before the Filing of an Appeal Brief**

Application No.

10/725,563

Applicant(s)

GUTMARK ET AL.

Examiner

Josiah Cocks

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 31 July 2006 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ They raise the issue of new matter (see NOTE below);
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
The status of the claim(s) is (or will be) as follows:
Claim(s) allowed: 1,5,6,11 and 12.
Claim(s) objected to: _____.
Claim(s) rejected: 4,7 and 10.
Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____
13. ☐ Other: _____.

Appended Explanation of Rejection of Claims

Response to Amendment

1. Receipt of applicant's proposed amendment filed 7/31/2006 is acknowledged. By this amendment applicant proposes amending claim 1 to incorporate the limitations of claims 2 and 3 and has amended the dependency of claim 4. However, claim 4 as now proposed, is dependent upon itself, rendering the scope of the claim indefinite (note 35 USC 112, 2nd paragraph rejection below). However, it appears that applicant intended to make claim 4 dependent upon claim 1 and has been considered as such for the purpose of an examination on the merits.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 4** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 is dependent upon itself. Accordingly, the scope of the claim is unclear. It appears applicant intended claim 4 to be dependent upon claim 1 and has been considered as such for the purpose of an examination on the merits.

Correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 7 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,464,489 to Gutmark et al. ("Gutmark '489") (cited by applicant) in view of U.S. Patent Application Publication US 2001/0027638 to Paschereit et al. ("Paschereit").

Gutmark '489 discloses in Figures 7 and 10 an invention in the same field of endeavor as applicant's invention and similar to that described in applicant's claims 7 and 10. In particular, Gutmark shows a device and method for affecting thermoacoustic oscillations in a combustion system including a burner in which a gas flow forming in the region of the burner is excited acoustically (see Abstract). It is recognized that multiple frequency waves are introduced into a

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gas flow shear layer (see col. 2, lines 32-61) and that the acoustic excitation functions to counteract, and is thus coordinated with, the formation of any given interference frequency, including a fundamental frequency (see col. 3, lines 54-59). Gutmark '489 further discloses a control system that includes one or more upstream acoustic sources (10) producing acoustic excitations of a gas flow (see col. 5, lines 22-63 and Figs. 9 and 10). Gutmark '489 also notes that the instantaneous acoustic excitation of the shear layer is phase-coupled with a signal measured in the combustion system that is correlated with the thermoacoustic fluctuations (see col. 3, lines 44-48).

Gutmark '489 includes a recitation that oscillations in the combustion system may be controlled/affected by fuel injection modulation (see col. 3, lines 26-31) but does not appear to go into further detail concerning the control system driving the acoustic source and a control valve to modulate the fuel injection is correlated to affect the same interference frequency of the thermoacoustic oscillations.

Paschereit teaches a system and method for affecting thermoacoustic vibrations in the same field of endeavor as both applicant's invention and Gutmark '489. In Paschereit, the thermoacoustic vibrations are controlled by means of modulating fuel injected with respect to time (see page 1, paragraph 007). Such modulation may be effected at any frequency (id. and page 2, paragraphs 0027-0029). The modulation is effected by opening and closing one or two fuel valves to control fuel quantity (see page 2, paragraph 0022). Paschereit also notes that the fuel injection may be correlated with thermoacoustic vibrations measured in the combustion system (see page 2, paragraph 0017). The examiner considers that a person of ordinary skill in the art would consider this to be a teaching that both the fuel injection modulation disclosed in

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Paschereit as being "correlated" with the thermoacoustic vibrations and the acoustic excitation of Gutmark' 489 disclosed as being "correlated" to the thermoacoustic vibrations would therefore be correlated to affect the same interference frequency.

Therefore, in regard to claims 7 and 10, it would have been obvious to a person of ordinary skill in the art to modify the system and method of Gutmark '489 to incorporate the fuel injection modulation of Paschereit as this fuel modulation technique is recognized to desirably control thermoacoustic vibrations in a combustion system for vibrations of any specific frequency thereby controlling emissions and producing a stable flame (see Paschereit, page 1, paragraphs 0004-0007).

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. **Claim 7** is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 7 of copending Application No. 10/725,564.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the structure recited in each of these claims is substantially identical. That the control systems function to affect different interference frequencies does not render the device claims structurally distinct. This recited functioning of the control system is merely a recitation of the intended use of the control system and does not serve to structurally distinguish claim 7 of this application from claim 7 of Application No. 10/725,564. It has been held that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). As there is no recited structural difference between the claims they are not regarded as patentably distinct.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

9. Claims 1, 5, 6, 11, and 12 are allowed.

Claim 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Claims 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

In regard to claim 1, in light of the record taken as a whole including the arguments submitted by applicant on 7/31/2006, the prior is not considered to show, teach or suggest the method for affecting thermoacoustic oscillations in a combustion system having at least one burner and at least one combustor that includes the operational steps as recited that result in a two separate phase shift procedures to control the acoustic excitation and the fuel modulation.

In regard to claims 5, 6, 11, and 12, these claims are allowable as being dependent upon allowable independent claim 1.

In regard to claim 4, this claim would be allowable if amended to be properly dependent upon allowable claim 1.

In regard to claim 8, in light of the record taken as a whole including the arguments submitted by applicant on 7/31/2006, the prior is not considered to show, teach or suggest the device for affecting thermoacoustic oscillations in a combustion system having the arrangement

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of structural features as recited in claim 7 in combination with the structure of the control system as recited in claim 8 including a control system with a control path for the acoustic excitation and a control path for the modulated injection of the fuel wherein the control paths each contain a time delay element for producing a phase shift and, in response to a signal correlating with the thermoacoustic oscillations, the first output path conducts a driver signal to the acoustic source and the second control path conducts a second driver signal to the control valve.

Claim 9 is dependent upon claim 8 and is therefore considered to contain allowable subject matter for the reasons noted above in regard to claim 8.

Response to Arguments

11. Applicant's arguments filed 7/31/06 in regard to claims 7 and 10 have been fully considered but they are not persuasive. As noted above the structural elements of claims 7 and 10 are considered present in the prior art.

Applicant also argues that the provisional obvious type double patenting rejection applied to claim 7 is in error. Applicant asserts that "the function of a control system does structurally limit an apparatus claim" (response, p.7). Applicant does not point to any support for this general statement.

In response the examiner notes that it has been held that "While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. See MPEP 2144 (citing *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429,1431-32 (Fed. Cir. 1997)). Further, "apparatus claims cover what a device *is*, now that a device *does*." Id. (citing Hewlett-

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Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

Applicant argues that the control system of claim 7 of this application that functions “to affect the same interference frequency of the thermoacoustic oscillations” is necessarily distinguished from the control system of application 10/725,564 that functions “to simultaneously affect at least two different frequencies of the thermoacoustic oscillations” as these control system are “adapted for” these different functions (see response, p. 8). The examiner notes that the MPEP specifies that “[c]laim scope is not limited by...claim language that does not limit a claim to a particular structure.” See MPEP 2111.04. While, the claims in question do not include the terms “adapted for” the examiner notes that “adapted for” language may give rise to a question as to the limiting effect of the language in a claim. Further, the examiner agrees with applicant that the actual claim language of applicant’s claims appears similar in scope to the noted “adapted for” language and therefore appears to be included in the non exhaustive list of language that may give rise to a question as to the limiting effect the language. Id. The determination of whether these clauses is a limitation in a claim depends on the specific facts of the case. Id.

Reviewing the specific facts of this case reveals that the control system of this application that the control algorithm (17) of the control system (2) sets the phase shifts of time delay elements (12, 13) independently of one another that allows for independent control of the acoustic source and the control valve (see applicant’s specification, page 5, line 31 through page 6, line 16). This independent control of the acoustic source allows for control of the thermoacoustic oscillations of the combustion system (see applicant’s specification, p. 6, lines

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16-21) which allows for the interference frequency to be damped or varied (see applicant's specification, p. 6, lines 29-33). As the control system of this application allows for independent control of the control valve and acoustic source this control system is capable of driving each of these devices independently to affect a simultaneously affect a different frequency of the thermoacoustic oscillations, which is the claimed function of the control system of App. 10/725,564.

Accordingly, as the control system of claim 7 of this application is capable of performing the function of the control claim 7 of App. 10/725,564, the control system of claim 7 this application is not structurally distinguished from that of claim 7 of App. 10/725,564. As there is no other structural distinctions between these two claims, claim 7 of this application is properly considered to anticipate claim 7 of App. 10/725,564 and the provisional obviousness-type double patenting rejection noted above is properly applied.

Conclusion

12. This action is an ADVISORY ACTION.


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Josiah Cocks whose telephone number is (571) 272-4874. The examiner can normally be reached on weekdays from 8:00 AM to 5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg, can be reached at (571) 272-4828. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jcc
August 3, 2006


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PRIMARY EXAMINER
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